

STATEMENT OF BASIS

Applicant:	City of White Lake
Permit Number:	SD0021016
Contact Person:	The Honorable Troy Becker Mayor of White Lake P.O. Box 37 White Lake, S.D. 57383-0037
Phone:	(605) 249-2301
Permit Type:	Minor Municipal Wastewater Treatment Facility - Renewal

DESCRIPTION

The city of White Lake operates a wastewater treatment facility (WWTF) located approximately $\frac{3}{4}$ of a mile west of the city, in the northwest $\frac{1}{4}$ of Section 15 and the northeast $\frac{1}{4}$ of Section 16, Township 103 North, Range 66 West, in Aurora County, South Dakota (Latitude 43.725389°, Longitude -98.735194°, Map Interpolation).

The WWTF consists of a gravity flow collection system to a primary, bi-level cell (7.2 acres) and two artificial wetlands (1.0 and 2.7 acres). The WWTF was upgraded in 1989 to include the two wetland cells.

This wastewater treatment facility serves a population of 405 persons (2000 Census). There are no known significant industrial users who contribute flow to the WWTF.

RECEIVING WATERS

Any discharge from this facility will enter an unnamed tributary, which flows about two miles to Platte Creek. The unnamed tributary and Platte Creek are classified by the South Dakota Surface Water Quality Standards (SDSWQS) and Administrative Rules of South Dakota (ARSD), Section 74:51:03:01, for the following beneficial uses:

- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

Since the receiving waterbody has a minimum beneficial use classification of (9), the SDSWQS (ARSD Section 74:51:01:02.01) requires that an analysis of the receiving stream be conducted to determine whether the waterbody deserves a higher beneficial use designation. The South Dakota Department of Environment and Natural Resources (SDDENR) has conducted an analysis for Platte Creek and the unnamed tributary near the discharge location. SDDENR personnel have determined that the beneficial use classifications for Platte Creek and the unnamed tributary will remain unchanged at this time. However, SDDENR feels additional study is needed in this area. The permit will be written to ensure the protection of the current beneficial uses assigned to Platte Creek and the unnamed tributary. If SDDENR determines Platte Creek or

the unnamed tributary has additional beneficial uses that must be maintained and protected, the city of White Lake's permit will be reopened to include additional limits, as appropriate.

Before SDDENR proposes any upgrades to the existing beneficial uses of Platte Creek, the upgrades will be offered for public comment. The city of White Lake will have the opportunity to review and comment on both the changes to the beneficial uses and any proposed changes to the permit.

ANTIDEGRADATION

SDDENR has fulfilled the antidegradation review requirements for this permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the SDSWQS, no further review is required. The results of SDDENR's review are included in Attachment 1.

MONITORING DATA

The city of White Lake has been submitting Discharge Monitoring Reports (DMRs) as required under the current permit. As shown in Attachment 2, this facility exceeded the limit for BOD in June 2004. However, since this incident, no other violations have occurred at the facility. No future violations are expected. No discharge was reported for the months not included in the table.

INSPECTIONS

Personnel from SDDENR conducted a *Compliance Inspection* of the White Lake WWTF on June 20, 2006. The following comments and corrective actions were made:

COMMENTS	CORRECTIVE ACTIONS
<p>The quality of effluent discharged from your facility shall, as a minimum, meet the limits set forth in your SWD permit in Part 1.2. The following violations have been reported since the last inspection on 06/14/04:</p> <ol style="list-style-type: none">1. Jun 2004 – exceeded 30-day average for Biochemical Oxygen Demand (BOD).2. Jun 2004 – exceeded 7-day average for BOD.	<p>The city should continue in its efforts to consistently meet effluent limits and other provisions of the White Lake SWD permit.</p>
<p>All visits to the White Lake wastewater treatment facility conducted by city personnel have been documented in an <i>Inspection Notebook</i>. The White Lake notebook is complete except for the following records:</p>	<p>Maintain an Inspection Notebook that complies with the requirements set forth in Section 1.4 of your SWD permit.</p>

COMMENTS	CORRECTIVE ACTIONS
<p>1. The measured water depth or the measured free board in the ponds;</p> <p>The <i>Inspection Notebook</i> is a condition of the SWD permit</p>	
<p>Numerous errors were found in the 06/04 and the 06/05 Discharge Monitoring Reports (DMRs). These errors were discussed with the operator during the inspection.</p>	<p>The original DMRs sent to DENR are being returned to you with this report for corrections. The errors are noted on an enclosed copy of the DMRs. Correct the errors, initial the corrections, and return the corrected DMRs to: Kelli Buscher, DENR – Surface Water Quality Program, 523 East Capitol, Pierre, SD 57501.</p>
<p>The rate of discharge is being reported for each sample taken during a discharge using the V-notch weir in the outlet from the constructed wetlands. Flow rate is proportional to the height of the water (head) above the notch of the weir measured at a point at least 3 to 4 times the head upstream of the weir. In your structure, an acceptable measuring location would be the staff gauge on the sidewall upstream of the weir.</p>	<p>Read discharge head on the staff gauge of your wetland outlet. Use the 1.0 ft. mark as the zero or reference point. In other words, a reading of 1.4 ft. on the gauge would represent 0.4 ft. of head. The operator can refer to the discharge table in the O&M manual to find the flow rate that corresponds to the measured head.</p>
<p>The operator is correctly calibrating the pH and maintaining a pH calibration log. The calibration log is complete except for the following records:</p> <ol style="list-style-type: none"> 1. Buffer temperature, 2. Sample temperature; and 3. Sample pH. 	<p>A pH meter calibration log must be kept when the meter is used for self monitoring purposes. This log needs to include the date, time, and initials of the person calibrating the meter, and the calibrated meter readings for the 7.0 and 10.0 buffer solutions. An example of a pH calibration log is attached to this report.</p>
<p>Discharge Monitoring Reports (DMRs) shall be signed by the Mayor or by the sewer superintendent. DENR does not have written authorization from the Mayor of White Lake for the sewer superintendent Kevin Bradwisch to sign the DMRs.</p>	<p>Send a letter to DENR signed by the mayor specifying that Kevin Bradwisch is authorized to sign the DMR. The letter should be sent to: DENR – Surface Water Quality Program, 523 East Capitol, Pierre, SD 57501.</p>

The following comments and corrective actions are ***recommended*** and are items that will improve the operation of your facility.

COMMENTS	CORRECTIVE ACTIONS
Emergency procedures have not been established regarding the wastewater system.	In the event of a major storm event, a chemical release into the sewer system, a sewer main break, etc., written procedures containing what to do and who to contact should be accessible to staff.

EFFLUENT LIMITS

The permittee shall comply with the effluent limits specified below. These limits are based on the Secondary Treatment Standards (ARSD Section 74:52:06:03), Best Professional Judgment (BPJ), and current permit limits.

Outfall 001 – Any discharge from the west artificial wetland (Latitude 43.724775°, Longitude -98.739038°; Navigational Quality GPS).

1. The BOD₅ concentration shall not exceed 30 mg/L (30-day average) or 45 mg/L (7-day average). These limits are based on the Secondary Treatment Standards.
2. The Total Suspended Solids (TSS) concentration shall not exceed 110 mg/L (30-day average) or 165 mg/L (7-day average). These limits are based on Secondary Treatment Standards, SDDENR's policy for discharges to streams classified for the beneficial use of fish and wildlife propagation, recreation, and stock watering waters, and the current permit.

Note: ARSD Section 74:52:06:04(2) allows TSS limits less stringent than Secondary Treatment Standards if it can be demonstrated that:

- a) Waste stabilization ponds are the principal process used for secondary treatment;
- b) Operation and maintenance data indicate that TSS values specified in subdivision 74:52:06:03(3) cannot be achieved;
- c) The effluent quality for TSS does not exceed 110 mg/L for 30-day average and 165 mg/L for 7-day average; and
- d) The POTW is achieving levels of effluent quality required for BOD₅ specified in Section 74:52:06:03.

Because the facility meets the above criteria, the TSS variance is allowed.

3. The pH shall not be less than 6.0 standard units or greater than 9.5 standard units in any single analysis and/or measurement. These limits are based on the Secondary Treatment Standards, the SDSWQS, and the current permit.

Note: ARSD Section 74:52:06:03(4) allows a variance for the pH limit if the permittee can demonstrate the following:

- a) Inorganic chemicals are not added to the waste stream as part of the treatment processes; and
- b) Contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.

Because the facility meets the above criteria, the pH variance is allowed.

SDDENR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment.

- 4. No chemicals, such as chlorine, shall be used without prior written permission. This limit is based on BPJ.

Effluent water temperature (°C), flow rate in million gallons per day (MGD), total flow in million gallons (MG), and duration of discharge (days) shall be monitored, but will not have a limit.

SELF MONITORING REQUIREMENTS

At the initiation of any discharge, three samples shall be taken the first week and one sample each week for the following three weeks. Samples shall be taken once per month thereafter, until the discharge is discontinued. If a discharge is less than one week in duration, a sample shall be taken at the beginning, middle, and end of the discharge. If a discharge becomes intermittent, due to losses from evaporation and percolation, the discharge shall be sampled once per week during any week that flow is noted. All of the samples collected during the 7-day or 30-day period are to be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate.

Effluent monitoring results shall be summarized for each month and recorded on separate DMRs to be submitted to SDDENR on a **quarterly** basis. If no discharge occurs during a month, it shall be stated as such on the DMR.

Monitoring shall consist of **monthly** inspections of the facility and the outfall to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. **Weekly** inspections are required during a discharge. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDENR or EPA personnel when an inspection occurs.

SLUDGE

Based on the city of White Lake's permit application, the SDDENR does not anticipate sludge will be removed or disposed of during the life of the permit. Therefore, the proposed Surface Water Discharge permit shall not contain sludge disposal requirements. However, if sludge disposal is necessary, the city of White Lake is required to submit to SDDENR a sludge disposal plan for review and approval **prior** to the removal and disposal of sludge.

DRAINAGE ISSUES

Aurora County has the authority to regulate drainage. White Lake is responsible for getting any necessary drainage permits from the county **prior** to discharging.

ENDANGERED SPECIES

The table below shows the endangered and threatened species living in Aurora County as of September 18, 2008. This is a renewal of an existing permit. No listed endangered species are expected to be impacted by activities related to this permit.

T-Threatened

E-Endangered

GROUP	SPECIES	CERTAINTY OF OCCURRENCE	STATUS
Bird	Crane, Whooping	Known	E
Fish	Shiner, Topeka	Known	E

This information was accessible at the following U.S. Fish and Wildlife Service website as of November 19, 2008: <http://www.fws.gov/southdakotafieldoffice/endsppbycounty.htm>.

PERMIT EXPIRATION

A five-year permit is recommended.

PERMIT CONTACT

Any questions pertaining to this statement of basis can be directed to Douglas Baldwin for the Surface Water Quality Program, at (605) 394-2229.

February 10, 2009

ATTACHMENT 1

Antidegradation Review

Permit Type: Minor Municipal – Renewal	Applicant: City of White Lake
Date Received: October 20, 2008	Permit #: SD0021016
County: Aurora	Legal Description: NW1/4 Section 15 and NE1/4 Section 16, T103N, R66W
Receiving Stream: Unnamed tributary of Platte Creek	Classification: 9,10

If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: **N/A**

APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes ☒ No ☐ If no, go to question #2. If yes, check those reasons why the review is not required:
 - ☐ Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
 - ☐ *Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;
 - ☐ *Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
 - ☐ *The existing surface water discharge permittee, with DENR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
 - ☒ The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and DENR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
 - ☐ Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
 - ☐ The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
 - ☒ Other: This permit does not authorize an increase in effluent limits.

*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

No further review required.

ANTIDEGRADATION REVIEW SUMMARY

2. The outcome of the review is:

- ☒ A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
- ☐ The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
- ☐ The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
- ☐ The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
- ☐ The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
- ☐ Other: _____

3. Describe any other requirements to implement antidegradation or any special conditions That are required as a result of this antidegradation review: _____

Douglas Baldwin
Reviewer

November 21, 2008
Date

Kelli D. Buscher, P.E.
Team Leader

November 21, 2008
Date

ATTACHMENT 2

White Lake Monitoring Data

Date	BOD		TSS		pH		Temperature		Flow Rate	
	30-day Avg. 30 (mg/L)	7-day Avg. 45 (mg/L)	30-day Avg. 110 (mg/L)	7-day Avg. 165 (mg/L)	Minimum 6.00 SU	Maximum 9.50 SU	Daily Max. (Deg. C°)	30-day Avg. (Deg. C°)	Daily Max. (MGD)	30-day Avg. (MGD)
06/30/2004	65.3	65.3	23	23	7.11	7.54	24	23	0.05	0.02
06/30/2005	12.5	18	31.75	44	7.69	8.39	31	23	9.05	2.40
04/30/2007	14.66	14.66	19	19	7.96	8.26	16	14.33	0.02	0.01
06/30/2007	3.66	3.66	3	3	7.95	8.32	24	22	0.59	0.12
11/30/2007	9.6	9.6	35.3	35.3	7.92	8.39	5	4	0.10	0.02
12/31/2007	4	4	15	15	7.44	7.44	4	4	0.00	0.00
05/31/2008	13.6	17	27.6	33.3	7.73	8.79	17	11	0.59	0.07
06/30/2008	6	5.68	6	3	7.56	8	21	16	0.29	0.11

Indicates violation